Section C - Description/Specifications/Statement of Work

GENERAL SPECIFICATIONS

DUCHESNE DISTRICT OFFICE PARKING LOT REPAVING PROJECT

(4/10/15)

1.1 SCOPE OF CONTRACT

A. This project consists of repaving a portion of the Duchesne Ranger District Office Parking located in Duchesne Utah. The work shall include: sawcutting the existing parking lot edges, removing the existing asphalt surfacing, grading and compacting the existing aggregate subgrade, placing tack coat on asphalt edges and concrete gutter and sidewalk and furnishing and placing a 3-inch asphalt surface (compacted depth).

1.2 PROJECT LOCATION

A. The project is located in Duchesne, Utah at the Duchesne Ranger District Office. It is located at 85 West Main Duchesne, UT 84021.

1.3 SITE INFORMATION AND LIMITATIONS

A. The following site conditions are considered incidental to the contract and the contractor will not be paid directly for any of the following items:

1. Construction sites will be closed to the public during construction but open to authorized government employees. The Contractor will be responsible for signing, limiting public access, and safety of public and/or government employees in the area.
2. Utilities are available at the site for construction purposes.
3. No fuel storage on site is permitted.
4. The Contractor may use the existing restroom located at the District Office.

1.4 TRAFFIC CONTROL AND CONSTRUCTION SIGNING

A. No work that endangers, interferes, or conflicts with traffic or access to work sites shall be performed until a plan for satisfactory warning and handling of traffic has been submitted by the contractor and approved by the COR and Utah Department of Transportation. Construction signing for traffic control shall conform to the Manual of Uniform Traffic Control Devices (MUTCD). Contractor shall not be paid directly for this item, rather it will be considered incidental to other items of work listed in the Schedule of Items.

1.5 WORK CAMPS, STAGING AND STORAGE AREAS

A. Areas for staging operations and storage of materials shall be approved by the CO. The Contractor must request in writing for approval from the CO to stage trailers on site.

1.6 INSPECTION OF WORKSITE

A. The contractor acknowledges they have taken the necessary steps to ascertain the nature and location of work, and have investigated and satisfied themselves as to the general and local conditions that can affect the work or its cost. Any failure of the contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from the responsibility of estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expenses to the government.

1.7 START DATE

A. June 2015

1.8 CONTRACT TIME

A. Base: 14 Calendar Days

1.9 SPECIFICATIONS

A. The following specifications are attached. Some sections in the schedule of items refer to other sections not listed and are subsidiary to, or are included in payment for other pay items in this contract. These items are considered incidental and no additional compensation will be made.

Section 011250 - Measurement and Payment
Section 013300 - Submittal Procedures
Section 014130 - Quality Control
Section 024102 – Removal and Disposal of Existing Asphalt
Section 321200 – Hot Mix Asphalt

END OF SECTION C

March2015

USDA FOREST SERVICE, R-4
DUCHESNE DISTRICT OFFICE PARKING LOT REPAVING PROJECT

SECTION 011250 - MEASUREMENT AND PAYMENT
GENERAL

1.1 SUMMARY

A. Measurement and payment for contract work will be made only for and under those pay items included in the Schedule of Items. All other work, labor, materials, equipment, and incidentals necessary to successfully complete the project will be considered as included in the payment for items shown. This section defines the method of measurements and basis of payment for work items listed in the Schedule of Items.

B. When more than one class, size, type, thickness, etc. is specified in the Schedule of Items for any pay item, suffixes will be added to the item number to differentiate between the pay items.

1.2 DETERMINATION OF QUANTITIES

A. The following measurements and calculations shall be used to determine contract quantities for payment.

1. For individual construction items, longitudinal and lateral measurements for area computations shall be made horizontally or corrected to horizontal measurement unless otherwise specified. Measurements for geotextiles, netting and erosion control blankets shall be along slope lines.

2. For excavation or embankment volumes, the average end area method shall be used to compute volumes. However, if in the judgment of the Contracting Officer (CO), the average end area method is impractical, measurement shall be made by volume in hauling vehicles or by other three-dimensional methods.

3. For Structures, they shall be measured according to neat lines shown on the drawings or as altered by the CO, in writing, to fit field conditions.

4. For items that are measured by the linear foot, such as pipe culverts, fencing, guardrail, piping, utilities, and underdrains, measurements shall be made parallel to the base or foundation upon which the structures are placed.

5. For aggregates weighed for payment, the tonnage shall not be adjusted for moisture content, unless otherwise provided for.

6. For standard manufactured items (such as fence, wire, plates, rolled shapes, pipe conduits) identified by gauge, weight, section dimensions, and so forth, such identifications shall be considered the nominal weights or dimensions. Unless

controlled by tolerances in cited specifications, manufacturer's tolerances shall be accepted.

B. Earthwork Tolerances - Adjustments of horizontal or vertical alignment, within the tolerances specified in this contract, or shifts of balance points up to 100 feet shall be made by the contractor as necessary to produce the designed sections and to balance earthwork. Such adjustments shall not be considered as "Changes."

1.3 UNITS OF MEASUREMENT

A. Payment shall be by units defined and determined according to U.S. Standard measure and by the following:

1. Acre: Make longitudinal and transverse measurements for area computations horizontally.

2. 50lb Bag: Measurement will be for the actual number of 50lb bags of standard bentonite grout.

3. 94lb Bag: Measurement will be for the actual number of 94lb bags of standard cement or grout.

4. Cubic Yard (CY): A measurement computed by one of the following methods:

   a. Excavation, Embankment, or Borrow. The measurement computed by the average end area method from measurements made longitudinally along a centerline or reference line.
   b. Material in Place or Stockpile. The measurement computed using the dimensions of the in-place material.
   c. Material in the Delivery Vehicle. The measurement computed using measurements of material in the hauling vehicles at the point of delivery. Vehicles shall be loaded to at least their water level capacity. Leveling of the loads may be required when vehicles arrive at the delivery point.

5. Each (EA): One complete unit, which may consist of one or more parts.

6. Gallons (GAL): The quantity shall be measured by any of the following methods:

   a. Measured volume in container.
   b. Metered volume by approved metering system.
   c. Commercially package volume.

7. Hour (HR): Measurement will be for the actual number of hours (or fraction thereof) ordered by the Contracting Officer and performed by the contractor.

8. Linear Foot (LF): Measurement of work along its length from point-to-point; parallel to the base or foundation. Do not measure overlaps.

9. Lump Sum (LS): One complete unit.

10. Mile: Measured horizontally along the centerline of each roadway, approach, or ramp.

11. Pound (LB): For sacked or packaged material, measurement will be the net weight as packed by the manufacturer.

12. Square Foot (SF): Measured on a plane parallel to the surface being measured.

13. Square Yard (SY): Measured on a plane parallel to the surface being measured.

14. Ton: Measured as a short ton consisting of 2,000 pounds.

1.4 METHOD OF MEASUREMENT

A. One of the following methods of measurement for determining final payment is designated on the Schedule of Items for each pay item:

1. ACTUAL QUANTITIES (AQ) - These quantities are determined from actual measurements of completed work.

2. DESIGNED QUANTITIES (DQ) - These quantities denote the final number or units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, drawings, and the presentation in the contract. Changes in the number of units shown in the Schedule of Items may be authorized under any of the following conditions:

   a. As a result of changes in the work authorized by the CO.
   b. As a result of the CO determining that errors exist in the original design that cause a pay item quantity to change by 15 percent or more.
   c. As a result of the Contractor submitting to the CO a written request showing evidence of errors in the original design that cause a pay item quantity to change by 15 percent or more. The evidence must be verifiable and consist of calculations, drawings, or other data that show how the designed quantity is believed to be in error.

3. LUMP SUM QUANTITIES (LSQ) - These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job. They shall not be measured.

4. STAKED QUANTITIES (SQ) - These quantities are determined from staked measurements prior to construction.

5. VEHICLE QUANTITIES (VQ) - These quantities are measured or weighed in hauling vehicles.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 011250
MARCH 2015

USDA FOREST SERVICE, R-4
DUCHESNE DISTRICT OFFICE PARKING LOT REPAVING PROJECT

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals. See Table 013300-1 for a summary of required submittals.

B. See other specification section within this package for additional requirements on submittal.

1.2 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. The Contracting Officer (CO) reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on CO's receipt of submittal.

1. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. CO will advise Contractor when a submittal being processed must be delayed for coordination.
2. If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Allow 14 days for processing each re-submittal.
4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

C. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by CO.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Contractor.
    d. Name of manufacturer.
    e. Unique identifier, including revision number.
    f. Number and title of appropriate Specification Section.
    g. Drawing number and detail references, as appropriate.
    h. If more than one item is shown on submittal sheet, identify item.

D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

E. Additional Copies: Unless additional copies are required for final submittal, and unless CO observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

F. Use for Construction: Use only final submittals with mark indicating action taken by CO in connection with construction.

1.3 MEASUREMENT AND PAYMENT

A. No separate measurement and/or payment will be made for this section. Payment shall be included with work shown in the schedule of items.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS – (Submittals requiring CO approval)

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. CO will return two copies. Mark up and retain one returned copy as a Project Record Document.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Compliance with recognized trade association standards.
    g. Compliance with recognized testing agency standards.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

D. Contractor's Construction Schedule: The contractor shall submit a Construction Schedule, for approval by CO, in accordance with the contract provisions within 5 day of commencement of work.

E. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

2.2 INFORMATIONAL SUBMITTALS – (Submittals NOT requiring CO approval)

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. CO will not return copies.
2. Certificates and Certifications: Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Section 014100 "Quality Control."

B. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

C. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

D. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.

E. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to CO.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

C. CO will not review submittals that do not bear Contractor's approval stamp and will return them without action.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

E. Substitutions – Whenever materials, products, and equipment are listed by name or brand in the specifications and/or on the drawings, it is used as a measure of quality,

utility, or standard. If the Contractor prefers to use any other brand or manufacturer of same quality, appearance and utility to that specified, he shall request substitution as provided below, not less than 30 days before the planned installation of the item. The Contracting Officer will approve or disapprove the request for substitution.

F. Requests for substitutions will only be considered if contractor submits the following:

1. Complete technical data including drawings, complete performance specifications, test data, samples and performance tests of the article proposed for substitution. Submit additional information if required by Contracting Officer. All items in the above information shall be circled, tagged, or marked in some way to indicate all deviations or differences which the proposed item differs from the originally specified item.
2. Similar data as above for item originally specified. All items shall be marked to identify where/how the proposed substitution will differ.
3. A statement by the Contractor that the proposed substitution is in full compliance with the contract documents, applicable codes, and laws.
4. The Contractor shall be responsible for any effect upon related work in the project for any substitution and shall pay any additional costs generated by any substitutions.

3.2 SUBMITTAL SCHEDULE – Submittals shall be made as required by and called for in the drawings and specifications. The following table is a summary of the required submittals for the project - the table is to assist the Contractor and may not be all inclusive – additional submittals may be required by specific specifications:

TABLE 013000-1

Spec. Section	Section Title	Sub-sec-tion	Required Submittal
C	Section C	1.4A	Traffic Control Plan
014100	Quality Control	1.3 A	Contractor quality control plan
014100	Quality Control	1.3B	Permits, Licenses and Certificates
014100	Quality Control	1.3 C	Test and inspection reports
321200	Hot Mix Asphalt Paving	1.2 A	Product Data
321200	Hot Mix Asphalt Paving	1.2B	Job Mix Design
321200	Hot Mix Asphalt Paving	1.2C	Material Certifications

END OF SECTION 013300
MARCH 2015

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DUCHESNE DISTRICT OFFICE PARKING LOT REPAVING PROJECT

SECTION 014100 - QUALITY CONTROL

PART 1 - GENERAL

1.1 This work shall consist of providing quality control in conformance with the inspection, testing, and product certification requirements of this contract to ensure compliance with the drawings and specifications. The Contractor shall provide all personnel, equipment, tests, and reports necessary to meet the requirements of the contract.

1.2 QUALITY CONTROL

A. The Contractor shall provide and maintain a quality control system that will ensure all services, supplies, and construction work required under this contract conforms to the contract requirements. The Contractor shall perform, or cause to be performed, the sampling, inspection, and testing required to substantiate that all services, supplies, and construction conform to the contract requirements.

B. Special Tests and Inspections: Contractor will engage a testing agency to conduct required special tests and inspections. The Contractor shall authorize the testing agency to perform the required testing and inspections on the work completed. The authority shall include:

1. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
2. Testing agency will re-test and re-inspect corrected work.

C. Retesting/Reinspecting: Contractor shall provide quality-control services for retesting and reinspection for replaced construction work or for work that failed to comply with the requirements under the contract.

1.3 SUBMITTALS

A. Contractor Quality Control Plan

B. Permits, Licenses, and Certificates

C. Test and Inspection Reports

1.4 MEASUREMENT AND PAYMENT

A. No separate payment will be made for the work included under this section; rather payment shall be considered to be included in the items of work listed in the Schedule of Items.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 QUALITY CONTROL SYSTEM

A. General: Perform required testing, inspections, sampling, and similar services per direction specified in the contract drawings and specifications and in accordance with established industry standards.

3.2 CONTRACTOR QUALITY CONTROL PLAN

A. At the time of the preconstruction conference, the Contractor shall submit for approval a written Contractor Quality Control Plan.

1. If the plan requires any revisions or corrections, the Contractor shall resubmit the plan within 10 days.
2. The Government reserves the right to require changes in the plan during the contract period as necessary.
3. No change in the approved plan may be made without written concurrence by the Contracting Officer.
4. At a minimum, the plan shall include the following:

    a. A list of personnel responsible for quality control and assigned duties. Include each person's qualifications.
    b. A copy of a letter of direction to the Contractor's Quality Control Supervisor outlining assigned duties.
    c. Names, qualifications, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms.
    d. Methods of performing, documenting, and enforcing quality control of all work.
    e. Methods of monitoring and controlling environmental pollution and contamination as required by all applicable regulations and laws.

3.3 TEST AND INSPECTION REPORTS

A. Submit three copies of complete test results no later than three calendar days after the test was performed.

B. Submit failing test results and proposed remedial actions within four hours of noted deficiency.

C. Testing and Inspection Reports shall include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples, tests, or inspections.
5. Names of individuals performing tests and inspections.
6. Reference Specification Section(s).
7. Complete test or inspection data.
8. Test and inspection results and an interpretation of test results.
9. Ambient conditions at time sample was taken, tested, or inspected.
10. Comments or professional opinion on whether tested or inspected work complies with the Contract Document requirements.
11. Name and signature of person conducting the test or inspection.
12. Recommendations on retesting and reinspecting.

3.4 PERMITS, LICENSES, AND CERTIFICATES

A. For Contracting Officer's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations relevant to the on performance of the work.

3.5 AS-BUILT DRAWINGS

A. The Contractor shall maintain a set of the contract drawings depicting as-built conditions. These drawings shall be maintained in a current condition and shall be available for review. All variations from the original contract drawings shall be indicated in red on the drawings. Upon completion of the contract work, as-built drawings shall be submitted to the Contracting Officer.

3.6 SAMPLING, TESTING, AND CERTIFICATION REQUIREMENTS

A. Sampling, testing, and Certification requirements and frequency for specific items shall be as specified in the drawings and specification. The following table is a summary of the required sampling, testing, and certification for the project - the table is to assist the Contractor, but may not be all inclusive – additional submittals may be required by specific specification section:

TABLE 014100-1			
Item	Subsection	Certification or Test Required	Frequency
321200	3.1A	Subgrade In-Place Density	2 per jobsite
321200	3.9A	Aspahlt In-Place Density	2 per jobsite
321200	3.9B	Asphalt In-Place Thickness	2 per jobsite

END OF SECTION 014100
MARCH 2015

USDA FOREST SERVICE, R-4
Vernal Warehouse Parking Lot Repaving Project

SECTION 024102 - REMOVAL& DISPOSAL OF EXISTING ASPHALT

PART 1 - GENERAL

1.1 SUMMARY

A. Work includes the removal and disposal of existing asphalt.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and Payment shall be lump sum for the work associated with removal and disposal of all existing asphalt as shown on the drawings.

PART 2 - PRODUCTS – not applicable

PART 3 - EXECUTION

3.1 REMOVAL

A. The Contractor may elect to use any means to remove the asphalt, as long as he provides for the safety of the public, and preservation of the surrounding sidewalk and gutter and structures to remain.

3.2 DISPOSAL

A. All asphalt shall be removed from the project site and legally disposed off of Government property in an approved location.

1. The Contractor is responsible for all costs and permits associated with disposal.
2. The Government is not responsible for waste material upon its departure from the project site.

END OF SECTION 024102
APRIL 2015

USDA FOREST SERVICE, R-4
DUCHESNE DISTRICT OFFICE PARKING LOT REPAVING PROJECT

SECTION 321200 - HOT-MIX ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes saw cutting of pavement, surface preparation and hot-mix asphalt concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

B. Job-Mix Designs: Submit written job-mix formulas for approval at least 28 days before production. Furnish mixes of aggregate, asphalt binder, recycled asphalt pavement, and additives that meet the applicable gradation and material requirements in one of the following:

1. Superpave designed asphalt mixture with performance grade asphalt binder **PG 58-28**.
2. Hveem or Marshall designed asphalt mixture as approved by the Contracting Officer.
3. State Department of Transportation approved asphalt concrete pavement mixture as approved by the Contracting Officer.

C. Material certificates including maximum specific gravity (density) as determined by AASHTO T209.

D. Compaction density test results.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall be registered with and approved by the Department of Transportation of the state in which Project is located.

B. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.

C. Testing Agency Qualifications: The contractor shall engage a qualified independent testing and inspecting agency to perform field tests and to prepare test reports.

D. Pre-paving Conference: Coordinate attendance with the Contracting Officer and all applicable subcontractors. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:

1. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
2. Review condition of subgrade and preparatory work.
3. Review Traffic Control Plan
4. Review Contractor Quality Control Plan for paving and testing.
5. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
6. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
7. Review acceptance procedures

1.4 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature in the shade of 45 deg F and rising.
2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 50 deg F at time of placement.

1.5 MEASUREMENT AND PAYMENT

A. Hot Mix Asphalt Pavement: Number of tons of pavement supplied, installed and accepted. Includes saw cutting of pavement, surface preparation (grading and compacting existing aggregate subgrade), tack coat, and installation of pavement. Measurement shall be vehicle weight tickets.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag.

C. Fine Aggregate: **ASTM D 1073 or AASHTO M 29**, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.

1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

D. Mineral Filler: **ASTM D 242 or AASHTO M 17**, rock or slag dust, hydraulic cement, or other inert material.

2.2 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes designed according to procedures in AI SP-2 "Superpave Mix Design", AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.", or State Department of Transportation approved mix design. The mix design shall have a history of satisfactory performance in geographical area where project is located. Do not begin mix production until the job-mix formula is approved by the Contracting Officer.

PART 3 - EXECUTION

3.1 GENERAL

A. The subgrade shall be graded to a constant slope between the existing sidewalk and existing concrete gutter. Unless specified otherwise, subgrade shall be compacted to 95 percent of AASHTO T 99, method D.

B. Determine the optimum moisture content of existing subgrade according to AASHTO T180, method D. Mix the aggregate and adjust the moisture content to obtain uniform moisture content within 2 percent of the optimum. Spread and shape the mixture on the prepared surface in a uniform layer not to exceed 6 inches in compacted thickness.

C. Compact each layer of aggregate full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

D. Surface shall be graded and shaped smooth to within ½-inch in 10 feet.

E. Maintain the aggregate course to the correct lines, grade, and cross-section by blading, watering, and rolling until placement of the asphalt.

F. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces.

G. Proceed with paving only after unsatisfactory conditions have been corrected.

H. Saw Cutting of Adjacent Pavement and Tack Coat –

1. Make a vertical cut through the full depth of surface in a straight clean line.
2. Where the edge of the existing surface is cracked, broken, or deteriorated, make the cut so the defective surface can be removed.
3. Do not allow traffic or construction equipment to cross the cut edge.
4. Apply a tack coat (at a rate of 0.05 to 0.15 gal./sq.yd.) to the cut asphalt edge and edges of concrete gutter and sidewalk before placing hot mix asphalt surfacing.
5. Avoid smearing or staining adjoining surfaces.

3.2 MIXING

A. Hot-Mix Asphalt Pavement Mix and Mixing Plant shall conform to AASHTO M156.

3.3 HAULING

A. Trucks used for hauling bituminous mixtures shall have tight, clean, smooth metal beds that have been thinly coated with a material to prevent the mixture from adhering to the beds. Truck beds shall be drained prior to loading. Each truck shall have a cover to protect the mixture from the weather. When necessary to ensure that the mixture will be delivered at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

3.4 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Spread mix at minimum temperature of 275 deg F.

B. Pavers: Use pavers that are self-contained, power-propelled units with adjustable vibratory heated screeds, capable of spreading and finishing courses of asphalt mix in thicknesses and widths shown on the Drawings without segregating, tearing, shoving, or gouging. When indicated, pavers shall be equipped with automatic screed controls and with sensors capable of sensing grade from an outside reference line, sensing transverse slope of the screed, and providing the automatic signals that operate the screed to maintain grade and transverse slope.

3.5 COMPACTING ASPHALT

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.

B. Thoroughly and uniformly compact the asphalt surface by rolling. Do not cause cracking, shoving, or undue displacement. Continue rolling until all roller marks are eliminated, all cracks are sealed, and the required density is obtained. Do not roll the mix after the surface cools below 175 º F.

C. Monitor the compaction process with nuclear density gauges. Compact to a pavement specific gravity (density) that is no less than **92 percent** of the maximum specific gravity (density) determined according to AASHTO T 209.

3.6 JOINTS, TRIMMING EDGES, AND CLEANUP

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Construct transverse joints as described in AI MS-22, "Construction of Hot Mix Asphalt Pavements."
3. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
4. Compact asphalt at joints to a density within 2 percent of specified course density.

B. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

C. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

D. Disposal: Except for material indicated to be recycled, remove all trimmed or otherwise discarded materials from Project site and legally dispose of them in an EPA-approved landfill. Do not allow waste materials to accumulate on-site.

3.7 PAVEMENT SMOOTHNESS

A. Use a 10-foot metal straight edge to measure at right angles and parallel to the centerline. Defective areas are surface deviations in excess of ¼ inch in 10 feet between any two contacts of the straightedge with the surface. Correct defective areas using approved methods.

3.8 PATCHING AND REPAIR

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to clean, vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Fill excavated pavements with hot-mix asphalt. While still hot compact flush with adjacent surface.

D. Thickness: The completed pavement shall have a minimum thickness of 3 inches after compaction or as shown on the Drawings.

E. Acceptance: The compacted bituminous surfacing, when ready for acceptance, shall be thoroughly compacted, smooth, and match existing grade and cross section.

3.9 ACCEPTANCE

A. Hot Asphalt Concrete Pavement shall be tested as indicated in Part 1 – "Quality Assurance." Field density shall be determined in place after final rolling by nuclear method according to ASTM D 2950 or other approved procedure. The frequency of testing shall be twice per jobsite and as deemed necessary by the Contracting Officer. The test results shall be provided upon completion.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549. Testing frequency shall be two per jobsite and as deemed necessary by the Contracting Officer.

C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION 321200

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